

REMARKS

Claims 1 to 32 are pending. Claims 6 is canceled. No claims have been withdrawn from consideration. Claims 1, 9 and 20 are currently amended. Claim 32 has been added. Basis for new claim 32 may be found on page 12, lines 1-12.

Reconsideration of the application is requested.

§ 112 Rejections

Claims 4, 5, 6, 15, 18, 19 and 22 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The second paragraph of page 5 of the Office Action refers to “residuals”. Applicants believe the paragraph should refer to claims 2 and 19 rather than 4 and 19. The Office Actions asserts it is not clear what is meant by the term “residual”.

At page 17, lines 10 to 18, and at page 18, line 13, the term refers to monomer and/or solvents, plasticizers or viscosity modifiers; i.e. low molecular weight materials that may effect the physical properties, the processing, or the desired end uses. At page 23, lines 27 to 31, the specification states that the gel materials are substantially free of residuals, which “can migrate to other parts of a dressing, for example, which can be detrimental to the integrity of the dressing, or into the body of the patient on which the dressing is disposed”.

Claims 5, 6 (now cancelled), 15 and 22 each recite the term “degree of polymerization”. The Examiner asserts that “molecular weight of polymers can only be referred to in terms of average molecular weight”.

The term refers to the number of repeat units in the oligomer, and is therefore related to, but is not a function of, the molecular weight of the oligomer. Molecular weight of a polymer (or oligomer) is a function of the molecular weight of the constituent monomers. Applicant’s further assert that the term is well known in the art, as evidenced by the Encyclopedia of Polymer Science and Engineering, provided as an appendix to this response.

Applicants use the term in the context of having a degree of polymer less than 300, or less than the entanglement molecular weight of the oligomer. As taught on page 18 the greater than expected viscosity (for polymers having a degree of polymerization greater than 300), is

attributed to entanglements of polymer chains. It has been shown empirically that polymers or oligomers with less than 300 repeat units are not entangled. Thus, with the present oligomers, the slope of the log-log plot of viscosity vs. molecular weight (M_n) is about 1, whereas for higher molecular weight polymers the slope is 3.4.

Claim 18 recites the phrase “partially converted to a coatable viscosity. The Examiner asserts it is unclear how a composition can be partially converted to a viscosity, since viscosity is a property of the composition. The composition either has a particular viscosity or it does not have that viscosity, a composition cannot partially have a viscosity.

The adverb “partially” is meant to modify the word “converted”, not the words “viscosity” or “composition”. Partial conversion in this context means partially curing or crosslinking the composition to achieve a thickened solution exhibiting a coatable viscosity of from about 500-10,000 cPs at 22°C, more preferably from about 750 to 7500 cPs, as described on page 20, lines 15 to 18. It would be understood that the composition of claim 1 may have to low a viscosity to efficiently coat, and by partial conversion the viscosity is raised.

In summary, Applicants submit that the rejection of claims 4, 5, 15, 18, 19 and 22 under 35 USC § 112, second paragraph, has been overcome, and that the rejection should be withdrawn. Withdrawal of the rejection is respectfully requested.

§ 102 Rejections

Claims 1-31 stand rejected under 35 USC § 102(a) or 102(e) as being anticipated by WO 2003/086492. The rejection is traversed.

Applicants note that the reference is equivalent to U.S. 7,005,143 (Abuelyaman et al.), to which remarks and arguments are addressed. Applicants request that the basis for the rejection, 102(a) or (e) be clarified to allow a full and appropriate response, noting the reference is commonly assigned and has common inventors.

The reference is directed a gel material comprising a polymerized poly(oxyalkylene) macromonomer. The macromonomer comprises a poly(oxyalkylene) backbone and terminal acrylate groups. The gel material may further comprise monofunctional poly(oxyalkylene) monomers (column 10, lines 50-62), polar monomers (column 10, line 63 to column 11, line 11), hydrophobic

monomers (column 11, lines 12-18) or monomers having a photoinitiator group (column 7, lines 58-63).

Claim 1 may be distinguished from the reference by the limitation of “pendent, ethylenically unsaturated free-radically polymerizable functional groups”, which is neither taught nor suggested by the reference.

For the purposes of illustration, the first component oligomer of claim 1 may be depicted as follows, where A is a pendent hydrophilic group, and B is a ethylenically unsaturated free-radically polymerizable group. The repeat units of the polymers are derived from free radical polymerization of ethylenically unsaturated monomers (such as acrylates), bearing the requisite pendent units A and B. For example, the repeat unit bearing the hydrophilic “A” group is derived from the monomers of the formula on page 10, lines 7 to 22, and the monomers bearing the ethylenically unsaturated “B” group are described from page 9, line 19, to page 12, line 13. The word “pendent” is used in the conventional sense of hanging down or dangling from the oligomeric backbone.



The macromonomer of the reference is described as having “more than one reactive group that is free radically polymerizable..”, and is illustrated by the formula (at several places) as of the formula $XO-(CHR^1-CH_2-O)_m-(CH_2-CH_2-O)_n-Y$, where X and Y are the polymerizable groups. These polymerizable groups are depicted in column 4, 5 and 8.

The illustrated oligomer may have terminal unsaturated groups, but would not have pendent unsaturated groups. If copolymerized with any of the optional monomers described above, as described in reference column 10, lines 1-12, it would be clear to one skilled in the art that all the polymerizable groups would be consumed in the polymerization, therefore precluding Applicant’s limitation of “pendent, ethylenically unsaturated free-radically polymerizable functional groups”.

The Examiner may be confusing Applicant’s use of the term “pendent” with an ethylenically unsaturated groups that is at the terminus of a branch. Abuelyaman et al. allow the reference multifunctional macromonomers to be branched. As described in reference column 9,

lines 1-24, branched macromonomers may result, for example by reacting a linear dihydroxy terminated poly(oxyalkylene) compound with a triacid (such as trimellityl chloride) followed by reaction with hydroxyethyl methacrylate. To the extent that the Examiner believes that such acrylate groups are “pendent”, it should be further noted that such a macromonomers comprises a poly(oxyalkylene) backbone from which the groups are pendent. At column 9, lines 17-19, the reference states “each arm of a multifunctional macromonomer includes the copolymeric random alkylene oxide moiety, although each arm in any one macromonomer can be different”.

In contrast, Applicant’s oligomers necessarily have a carbon-carbon backbone resulting from polymerization of ethylenically unsaturated monomers, from which the recited groups are pendent.

Applicants recognize the difficulty in providing the oligomer of claim 1 with a pendent unsaturated group, and are able to provide the requisite pendent group in one of two ways. By the “direct method”, a polyunsaturated monomer is used where the two unsaturated groups have unequal reactivity, thereby avoiding, in part the problems of branching and premature gelation. Using the preferred “indirect method”, a monomer having reactive functional group is used to prepare the oligomer, such that the oligomer has a pendent reactive functional group. The oligomer is then reacted with an unsaturated compound having a functional group that is co-reactive with the pendent functional group of the oligomer. Applicant’s indirect method is the subject of claims 10 and 11. Such methods are neither contemplated nor suggested.

Claim 1 may further be distinguished from the reference in that the recited monomers are separate monomers. In asserting the rejection, the Office Action forces the reference multifunctional macromonomer to play three distinct roles: to provide the pendent hydrophilic group (of component a), the pendent ethylenically unsaturated polymerizable group (also of component a), and the hydrophilic poly(alkylene oxide) crosslinking agent (of component b).

Applicants contend that it would be clear to one skilled in the art that claim 1 recites two separate components and the first component oligomer comprises at least two separate monomers. Claim 1 has been amended to insert the phrase “a plurality of polymerized monomer units having” preceding “pendent ethylenically unsaturated polymerizable group” to further clarify these are distinct monomers and not the same monomer have both pendent group. New claim 31 has been added to recite the structure of the monomer to exclude those of the reference.

The Examiner appears to be suggesting that that as Abuelyaman et al. recite all the requisite components, that the products are necessarily identical. Yet, neither are the compositions identical, nor are the products.

If, for the purposes of this response, Applicants were to concede that Abuelyaman et al. describe all the components of claim 1 (which Applicants do not concede), it is well established that different reaction conditions, processes, or sequence of steps will lead to different products. Claim 1 recites that the composition comprises an oligomer ("a") which is subsequently reacted to "b"; a crosslinking agent having ethylenically unsaturated, polymerizable groups. Applicants concede that component "b" reads on the reference compounds of reference column 3, lines 62-64.

Review of M.P.E.P. 2112.01 is helpful:

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433.

The composition of oligomer component a) differs from that of the reference when compared to those of the reference. Further, the products of the instant claim and those of the reference are very different.

Claim 1 requires an extant oligomer comprising the two distinct monomers, and other optional monomers, which is then combined with the crosslinking agent. Claim 1 is amended to clarify any ambiguity, and claim 31 is added to exclude the ethylenically unsaturated group

pendent via a poly(oxyalkylene) group. The reference provides no teaching of Applicant's oligomer, not the subsequent crosslinking thereof with a separate crosslinking agent.

The product resulting from claim 1 is also different from the reference. The instant oligomer is first prepared, then subsequently reacted with the crosslinking agent. Abuelyaman provides two means to polymerize the reference composition. At column 12, lines 10-15, the macromonomer and other monomers are combined and polymerized. In this process, no extant oligomer is first prepared, and subsequently crosslinked. At column 12, lines 57-67 a "syrup polymer" technique is described whereby the multifunctional macromonomer is combined with the described optional monomers. In this case, no difunctional crosslinking agent is described.

Claim 9 recites weight limitations for the component monomers. Claim 13 recites the weight limitations of the oligomer relative to the crosslinking agent. As each claim depends from claim 1, they are for the reasons previously argued. Further, Abuelyaman et al. are entirely silent on the weight limitations of the optional monomers used in the reference macromonomer. From the broad teaching of "5 wt% to 100 wt% of column 3, line 44, one skilled in the art would not be in possession of Applicant's limitations, absent undue experimentation. Further, with respect to claim 13, the Office Action appears to use the "multifunctional macromonomer" of the reference to serve two functions; as Applicant's oligomer and as Applicant's crosslinking agent. Clearly, as represented by both claims 1 and 13, these are separate species that are combined and subsequently crosslinked.

The rejection of claims 1-5 and 7-31 under 35 USC § 102(a) or 102(e) as being anticipated by U.S. 7,005,143 has been overcome and should be withdrawn.

Double Patenting Rejections

Claims 1-5 and 7-34 are provisionally rejected on the grounds of nonstatutory obviousness type double patenting over claims 1-45 of copending application 10/732,715. The reference has published as U.S. 2005/0131148, to which remarks and arguments are addressed. The rejection is traversed.

The reference describes a hydrophilic, curable composition comprising: a first oligomer having pendant reactive electrophilic/nucleophilic groups and hydrophilic polyalkylene oxide groups; and

a second oligomer containing monomers with pendant functional groups co-reactive with pendant reactive nucleophilic/electrophilic functional groups of the first oligomer.

Claim 1 may be distinguished from the reference by the limitations of a) a first component oligomer comprising ... a plurality of polymerized monomer units having pendent, ethylenically unsaturated free-radically polymerizable functional groups; and b) a hydrophilic poly(alkylene oxide) crosslinking agent having polymerizable, ethylenically unsaturated terminal groups.

The pendant reactive and co-reactive functional groups of the reference are not ethylenically unsaturated groups, as required by claim 1. Instead, these groups are complementary; i.e. if the oligomer's reactive functional groups are electrophilic in nature, the second component should possess co-reactive nucleophilic groups. At page 5, paragraph 71 of the reference it states: "[t]he reactive and co-reactive functional groups form a crosslink between the first and second component oligomers by forming a linking group between the electrophilic and nucleophilic functional group pairs, and may include reactions commonly referred to as displacement, condensation and addition reactions, rather than polymerization of ethylenically-unsaturated groups.

Therefore the copending reference teaches a fundamentally different composition that crosslinks by a fundamentally different mechanism. Withdrawal of the obviousness-type double patenting rejection of claims 1-5 and 7-34 over claims 1-45 of copending application 10/732,715 is respectfully requested.

Claims 1-5 and 7-34 are provisionally rejected on the grounds of nonstatutory obviousness type double patenting over claims 1-34 of copending application 10/672,580. The reference has published as U.S. 2005/0070688, to which remarks and arguments are addressed. The rejection is traversed.

The reference is directed to a hydrophilic, crosslinkable oligomer composition comprising
a) a first component oligomer comprising a plurality of polymerized monomer units having pendent, free-radically polymerizable functional groups, and a plurality of polymerized monomer units having pendent, hydrophilic poly(alkylene oxide) groups; and

(b) a second component oligomer comprising a plurality of polymerized monomer units having pendent, free-radically polymerizable functional groups.

Claim 1 may be distinguished from the reference by the limitation of component “b”:
“a hydrophilic poly(alkylene oxide) crosslinking agent having polymerizable, ethylenically unsaturated terminal groups”. Such an element is neither taught nor suggested.

Applicant’s component “b” is a linear poly(oxyalkylene) crosslinking agent having terminal ethylenically unsaturated groups, such as terminal acrylate groups. Reference may be made to the description from page 18, line 30 to page 19, line 9, and the formula of claim 2. Such difunctional poly(oxyalkylene) crosslinking agents are not suggested by the reference.

In contrast, the second component of the reference is an oligomer having a carbon-carbon backbone comprising polymerized monomer units, such as acrylate units, having the requisite pendant ethylenically unsaturated groups. Reference may be made to paragraphs 38 to 43 on page 3 of the reference.

Therefore the copending reference teaches a fundamentally different composition. Withdrawal of the obviousness-type double patenting rejection of claims 1-5 and 7-34 over claims 1-45 of copending application 10/732,715 is respectfully requested.

Claims 1-5 and 7-24 are provisionally rejected on the grounds of nonstatutory obviousness-type double patenting over claims 1-23 of Assignee’s U.S. 7,074,839.

In response, enclosed is a “Terminal Disclaimer Under 37 C.F.R. Section 1.321(b),” which disclaims the portion of the term of any patent granted on the instant application that would extend beyond the expiration date of the term of U.S. 7,074,839. The Disclaimer also indicates that 3M Innovative Properties Company commonly owns the instant application and U.S. 7,074,839 by virtue of assignments recorded at Reel 015047, Frame 0177, on March 2, 2004 for the instant application, and at Reel 15040, Frame 666 on March 1, 2004 for 7,074,839. The Disclaimer further indicates that the chain of title of the instant application has been examined in order to comply with 37 C.F.R. Section 3.73(b).

Since under 37 C.F.R. Section 1.78(d) a terminal disclaimer in compliance with 37 C.F.R. Section 1.321(b) can be used to overcome a non-statutory double patenting rejection, Applicants respectfully request that the double patenting rejection be withdrawn.

The rejection of claims under the judicially-created obviousness-type double patenting standard over Applicant's U.S. 7,074,839 has been overcome and should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested. Allowance of claims 1-5 and 7-32 as amended, at an early date is solicited.

Respectfully submitted,

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